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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,656	12/06/2000	Marcel Rene Bohmer	PHN 17,812	8075

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EXAMINER	
OWENS, DOUGLAS W	
ART UNIT	**PAPER NUMBER**
2811	

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/730,656	BOHMER ET AL.	
	Examiner	Art Unit	
	Douglas W Owens	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claims 1 – 8 are objected to because of the following informalities:

Claim 1 recites the limitation, "...wavelengths at least in the range of from 800 to 1400 nm...". The term "at least" should be removed from the claim because it is not clear what is intended by the phrase when used in conjunction with a range where a lower limit and upper limit is given.

In line 2 of claim 6, "which" should be replaced with "wherein", and in line 3 of claim 2, "which" should be replaced with "wherein the" or "wherein said".

In line 3 of claim 6, the phrase "after damaging of the coating" should be replaced with "after the coating is damaged" or "after said coating is damaged".

In line 4 of claim 7, the phrase "after damaging of the coating" should be replaced with "after the coating is damaged" or "after said coating is damaged". Additionally, references to the drawings (reference figures) should be removed from claims 2-8.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 – 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 5,258,334 to Lantz, II.

Lantz teaches a semiconductor device (Col. 1, lines 10 – 11) comprising:

a substrate (Col. 3, lines 31 – 32); and

a semiconductor element (Col. 1, lines 10 – 11) and at least one security coating (Col. 1, lines 54 – 58), the security coating including powdery fillers (Col. 3, lines 14 – 15) in a matrix.

Lantz further teaches providing a powdery filler (Col. 3, lines 19 – 21) comprising TiO_2 (Col. 2, lines 57 – 61) or TiN (Col. 2, lines 46 – 51) *or combinations thereof* (Col. 3, lines 14 – 16) (emphasis added).

Lantz does not explicitly teach a device, wherein the first powdery material scatters visible light and a difference between a refractive index of the first powdery filler and the matrix is at least 0.3, and the second powdery filler absorbs radiation of wavelengths in the range of 800 to 1400 nm. Since Lantz teaches that a combination of the TiN (second filler, free of heavy metals) and TiO_2 (first filler) may be used, there is a teaching of a first and second powdery filler. Additionally, the powdery fillers taught by Lantz would have inherently exhibited the properties of the claimed invention since the material used by Lantz is identical to that of the claimed invention. Note that the refractive index of the matrix comprising Hydrogen silsesquioxane resin (HSQ) disclosed by Lantz (Col. 3, lines 29 – 30) has a refractive index of about 1.37, while the first filler (TiO_2) has a refractive index that is larger than 1.7 – 1.8 as admitted by the

applicant in lines 5 and 6 on page 3 of the disclosure, which results in a difference greater than 0.3 in the refractive indices.

Lantz does not explicitly teach the security material being disposed on a first side of the substrate. Lantz teaches that the purpose of the invention is to prevent reverse engineering by inhibiting visual access to an IC. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the material on a first side of the substrate since it is desirable to inhibit visual access to the IC.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lantz as applied to claim 1 above, and further in view of US patent No. 4,243,427 to DiBugnara. Lantz does not teach a semiconductor device, wherein the matrix of the security coating comprises mono-aluminum-phosphate. DiBugnara teaches using mono-aluminum-phosphate as a glassy protective coating over a semiconductor. It would have been obvious to one of ordinary skill in the art to incorporate the mono-aluminum-phosphate taught by Dibugnara into the device taught by Lantz, since it is a known material that is well suited for the intended use. The selection of a known material based on its suitability for its intended use supported a *prima facie* obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lantz and DiBugnara as applied to claims 1 and 4 above, and further in view of US patent No. 6,144,106 to Bearinger et al.

Lantz and DiBugnara do not teach a device, wherein the security coating has a thickness of less than 3 microns. Bearinger et al. teaches a device, wherein the

security coating has a thickness of less than 3 microns. It would have been obvious to one of ordinary skill in the art to incorporate the teaching of Bearinger et al. into the device taught by Lantz and DiBugnara since it is desirable to keep the device thin. Additionally, it has been held that optimization of a result effective variable only requires routine skill in the art.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lantz as applied to claim 1 above, and further in view of US patent No. 5,053,992 to Gilberg et al.

Regarding claim 6, Lantz does not teach a device, further including a light-sensitive element and an element containing data, wherein elements are covered by a security coating and wherein the light-sensitive reacts to exposure to light after the coating has been damaged, inducing a permanent change of state of the element containing data. Gilberg et al. teaches a light-sensitive element (42) and a data containing element (10), wherein elements are covered by a security coating (14) and wherein the light-sensitive reacts to exposure to light after the coating has been damaged, inducing a permanent change of state of the element containing data (Col. 1, lines 29 – 34; Col. 3, lines 31 – 43). It would have been obvious to one of ordinary skill in the art to incorporate the teaching of Gilberg et al. into the device taught by Lantz, since it is desirable to prevent inspection of secret data that is stored in the element (Col. 1, lines 14 – 16).

Regarding claim 7, Lantz does not teach a light-sensitive element and an electronically programmable element containing data, wherein the light-sensitive

element induces erasure of the data by bringing the electrically programmable element into a non-programmable state if the light-sensitive element is exposed to light after the security coating is damaged. Gilberg et al. teaches an electrically programmable memory element containing data ((10), Col. 1, line 30). Gilberg et al. further teaches that a light sensitive memory element reacts to exposure to light by inducing erasure of data (Col. 3, lines 40 – 41) which brings the electrically programmable element into a non-programmable state (Col. 3, lines 44 – 47). It would have been obvious to one of ordinary skill in the art to incorporate the teaching of Gilberg et al. into the device taught by Lantz, since it is desirable to protect sensitive data on an IC that could be obtained during a reverse engineering effort.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lantz in view of Gilberg et al. and US patent No. 5,892,661 to Stafford et al.

The proposed device of Lantz and Gilberg et al. teach a semiconductor device, as recited above, except for specifically teaching that the device functions as a smartcard. Stafford et al. teaches a smartcard requiring a protective coating (Col. 5, lines 50 – 55). It would have been obvious to one of ordinary skill in the art to apply it to usage within a smartcard, since it is desirable to protect sensitive data on the smartcard as well as protect it against reverse engineering.

Response to Arguments

8. Applicant's arguments filed September 10, 2002 have been fully considered but they are not persuasive.

The applicant argues that Lantz does not disclose a semiconductor device, wherein a difference between the first powdery filler and the matrix is at least 0.3. Although this teaching is not explicitly taught by Lantz it is an inherent feature of the materials used. Since Lantz teaches that a combination of the TiN (second filler, free of heavy metals) and TiO_2 (first filler) may be used, there is a teaching of a first and second powdery filler. Additionally, the powdery fillers taught by Lantz would have inherently exhibited the properties of the claimed invention since the material used by Lantz is identical to that of the claimed invention. Note that the refractive index of the matrix comprising Hydrogen silsesquioxane resin (HSQ) disclosed by Lantz (Col. 3, lines 29 – 30) has a refractive index of about 1.37, while the first filler (TiO_2) has a refractive index that is larger than 1.7 – 1.8 as admitted by the applicant in lines 5 and 6 on page 3 of the disclosure, which results in a difference greater than 0.3 in the refractive indices. For the applicants convenience the following references have been included showing the refractive index of HSQ:

US published patent application No. 2002/0033486 to Kim et al. (See Table)
Semiconductor International/September 1998 Cover Story (See Table 1)

The applicant further argues that it is not seen how Lantz's use of certain oxides and nitrides are obvious to use. Lantz specifically teaches that TiO_2 (Col. 2, lines 57 – 61) or TiN (Col. 2, lines 46 – 51) or combinations thereof (Col. 3, lines 14 – 16) may be used as the powdery filler material, which is an explicit teaching of the same materials cited in the claimed invention.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DWO
November 30, 2002

TOM THOMAS
SUPERVISORY PATENT EXAMINER
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